

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 97,008-W)

In re Application of:)	
)	
COPELAND, et. al)	
)	Group Art Unit: 1743
Serial No.: Not yet assigned)	
)	Examiner: Not yet assigned
Filed: August 16, 2001)	
)	
For: Automated Biological)	
Reaction Apparatus)	

Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Dear Sir:

IN THE SPECIFICATION

A marked up version of the amended portion of the specification, to show all the changes, is attached hereto on pages separate from the amendment in accordance with 37 CFR 1.121(c)(1)(ii).

Please delete lines 3-5 at page 1 and insert the following therefor:

“This is a continuation of application Serial No. 09/452,309, filed on December 1, 1999, pending, which is a continuation of application Serial No. 08/906,678, filed August 5, 1997, abandoned, which is a continuation of application Serial No. 08/479,415, filed June 6, 1995, U.S. Patent No. 5,654,200, which is a division of application Serial No. 352,966, filed December 9, 1994, U.S. Patent No. 5,595,707, which is a continuation of application Serial No. 924,052, filed August 31, 1992, abandoned, which is a continuation-in-part of application Serial No. 488,601, filed March 2, 1990, abandoned.”

At page 41, lines 3-8, please amend the text as follows:

“Immunohistological methods for which the apparatus of this invention are particularly suitable are described in concurrently filed, commonly assigned patent application Serial No. 07/488,601, filed March 2, 1990, now abandoned (Attorney Docket No. 193.0007), the entire contents of which are hereby incorporated by reference.”

IN THE CLAIMS:

Please cancel claim 1 without prejudice. Please add claims 72 - 98 as follows. A marked up version of the added claims is attached hereto on pages separate from the amendment in accordance with 37 CFR 1.121(c)(1)(ii).

72. (New claim) A method for automatically staining a biological sample comprising the steps of
- a) contacting a biological sample on a support medium with a first solution such that said first solution substantially covers said biological sample, the first solution being aqueous;
 - b) applying a second solution to cover the first solution-covered biological sample, the second solution being substantially water-immiscible and having a specific gravity less than water; and
 - c) stirring said second solution such that motion is transferred into said first solution zone.
73. (New claim) The method of claim 72, wherein the step of applying the second solution includes applying the second solution to an impact zone, the impact zone being between the biological sample and an end of the support medium.
74. (New claim) The method of claim 72, further comprising the step of applying reagent, the step of applying reagent being performed after the step of applying a second solution.

75. (New claim) The method of claim 74, wherein the reagent passes through the second solution.

76. (New claim) The method of claim 74, wherein the step of applying the second solution includes applying the second solution to an impact zone, the impact zone being between the biological sample and an end of the support medium;

wherein the step of applying reagent includes applying reagent to an area between the impact zone and an edge of the biological sample; and

wherein the reagent passes through the second solution.

77. (New claim) The method of claim 72, wherein said biological sample comprises tissue.

78. (New claim) The method of claim 72, wherein said second solution is an evaporation-inhibiting liquid phase.

79. (New claim) The method of claim 72, wherein the step of stirring said second solution such that motion is transferred into said first solution zone includes applying at least one gas stream to an area on a surface of the second solution.

80. (New claim) The method of claim 79, wherein the area on the surface of the second solution is between a center of the second solution and an edge of the support medium.

81. (New claim) The method of claim 80, wherein reagent is underneath the second solution; and

wherein the at least one gas stream moves the reagent in a circular path.

82. (New claim) The method of claim 79, wherein two streams are applied; and

wherein the two streams are applied in opposite directions.

83. (New claim) The method of claim 79, wherein two streams are applied;

wherein the first stream is directed against a first area of the surface of the second solution

between a center of the second solution and a first edge of the support medium; and

wherein the second stream is directed against a second area of the second solution between the

center of the second solution and a second edge of the support medium.

84. (New claim) The method of claim 72, wherein stirring said second solution comprises

directing at least one stream of air at an angle to the surface of said second solution and maintaining it

long enough to cause a rotation of the second solution.

85. (New claim) The method of claim 84, wherein stirring said second solution comprises creating

a vortex in the second solution.

86. (New claim) The method of claim 84, wherein stirring said second solution comprises

sequentially directing at least one stream of air, in opposing directions, such that the rotational

direction of said second solution is sequentially reversed.

87. (New claim) A method for automatically staining a biological sample comprising the steps of

a) contacting a biological sample on a support medium with an aqueous solution such that said aqueous solution substantially covers said biological sample;

b) applying an evaporation-inhibiting liquid phase to cover the aqueous solution-covered biological sample; and

c) stirring said evaporation-inhibiting liquid phase such that kinetic motion is transferred into said aqueous solution zone.

88. (New claim) The method of claim 87, wherein said biological sample comprises tissue.

89. (New claim) The method of claim 87, wherein said biological sample comprises polynucleic acid molecules.

90. (New claim) The method of claim 87, wherein said support medium is a glass microscope slide.

91. (New claim) The method of claim 87, wherein said evaporation-inhibiting liquid phase is a hydrocarbon having from about 9 to about 18 carbon atoms.

92. (New claim) The method of claim 87, wherein stirring said evaporation-inhibiting liquid phase comprises directing at least one stream of air at an angle to the surface of said evaporation-inhibiting liquid phase and maintaining it long enough to cause a rotation of the evaporation-inhibiting liquid phase.

93. (New claim) The method of claim 92, wherein stirring said evaporation-inhibiting liquid phase comprises creating a vortex in the evaporation-inhibiting liquid phase.

94. (New claim) The method of claim 92, wherein stirring said evaporation-inhibiting liquid phase comprises sequentially directing at least one stream of air, in opposing directions, such that the rotational direction of said evaporation-inhibiting liquid phase is sequentially reversed.

95. (New claim) The method of claim 87, wherein the step of applying an evaporation-inhibiting liquid phase includes applying an evaporation-inhibiting liquid phase to an impact zone, the impact zone being between the biological sample and an end of the slide.

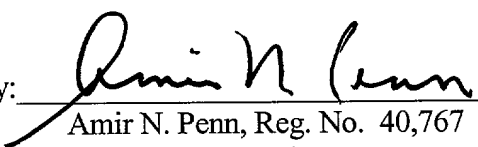
96. (New claim) The method of claim 87, further comprising the step of applying reagent to the evaporation-inhibiting liquid phase.

97. (New claim) The method of claim 96, wherein the reagent passes through the evaporation-inhibiting liquid phase and into the aqueous solution.

98. (New claim) The method of claim 97, whereby stirring the evaporation-inhibiting liquid phase accelerates the rate of dispersal of reagent to the biological sample covered by the aqueous solution.

Respectfully submitted,
McDonnell Boehnen Hulbert & Berghoff

Dated: August 16, 2001

By: 
Amir N. Penn, Reg. No. 40,767
Attorney for Applicant

APPENDIX UNDER 37 CFR 1.121(c)

IN THE SPECIFICATION:

Please delete lines 3-5 at page 1 and insert the following therefor:

This is a continuation of application Serial No. 09/452,309, filed on December 1, 1999, pending, which is a continuation of application Serial No. 08/906,678, filed August 5, 1997, abandoned, which is a continuation of application Serial No. 08/479,415, filed June 6, 1995, U.S. Patent No. 5,654,200, which is a division of application Serial No. 352,966, filed December 9, 1994, U.S. Patent No. 5,595,707, which is a continuation of application Serial No. 924,052, filed August 31, 1992, abandoned, which is a continuation-in-part of application Serial No. 488,601, filed March 2, 1990, abandoned.

At page 41, line 6, change “_____, filed March 2, 1990” to --07/488,601, filed March 2, 1990, now abandoned--, such that the sentence reads “Immunohistological methods for which the apparatus of this invention are particularly suitable are described in concurrently filed, commonly assigned patent application Serial No. 07/488,601, filed March 2, 1990, now abandoned (Attorney Docket No. 193.0007), the entire contents of which are hereby incorporated by reference.”

IN THE CLAIMS:

72. (New claim) A method for automatically staining a biological sample comprising the steps of
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 - c) stirring said second solution such that motion is transferred into said first solution zone.

73. (New claim) The method of claim 72, wherein the step of applying the second solution includes applying the second solution to an impact zone, the impact zone being between the biological sample and an end of the support medium.

74. (New claim) The method of claim 72, further comprising the step of applying reagent, the step of applying reagent being performed after the step of applying a second solution.

75. (New claim) The method of claim 74, wherein the reagent passes through the second solution.

76. (New claim) The method of claim 74, wherein the step of applying the second solution includes applying the second solution to an impact zone, the impact zone being between the biological sample and an end of the support medium;

wherein the step of applying reagent includes applying reagent to an area between the impact zone and an edge of the biological sample; and

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80. (New claim) The method of claim 79, wherein the area on the surface of the second solution is between a center of the second solution and an edge of the support medium.

81. (New claim) The method of claim 80, wherein reagent is underneath the second solution; and wherein the at least one gas stream moves the reagent in a circular path.

82. (New claim) The method of claim 79, wherein two streams are applied; and wherein the two streams are applied in opposite directions.

83. (New claim) The method of claim 79, wherein two streams are applied; wherein the first stream is directed against a first area of the surface of the second solution between a center of the second solution and a first edge of the support medium; and wherein the second stream is directed against a second area of the second solution between the center of the second solution and a second edge of the support medium.

84. (New claim) The method of claim 72, wherein stirring said second solution comprises directing at least one stream of air at an angle to the surface of said second solution and maintaining it long enough to cause a rotation of the second solution.

85. (New claim) The method of claim 84, wherein stirring said second solution comprises creating a vortex in the second solution.

86. (New claim) The method of claim 84, wherein stirring said second solution comprises sequentially directing at least one stream of air, in opposing directions, such that the rotational direction of said second solution is sequentially reversed.

87. (New claim) A method for automatically staining a biological sample comprising the steps of

- a) contacting a biological sample on a support medium with an aqueous solution such that said aqueous solution substantially covers said biological sample;
- b) applying an evaporation-inhibiting liquid phase to cover the aqueous solution-covered biological sample; and
- c) stirring said evaporation-inhibiting liquid phase such that kinetic motion is transferred into said aqueous solution zone.

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91. (New claim) The method of claim 87, wherein said evaporation-inhibiting liquid phase is a hydrocarbon having from about 9 to about 18 carbon atoms.
92. (New claim) The method of claim 87, wherein stirring said evaporation-inhibiting liquid phase comprises directing at least one stream of air at an angle to the surface of said evaporation-inhibiting liquid phase and maintaining it long enough to cause a rotation of the evaporation-inhibiting liquid phase.
93. (New claim) The method of claim 92, wherein stirring said evaporation-inhibiting liquid phase comprises creating a vortex in the evaporation-inhibiting liquid phase.
94. (New claim) The method of claim 92, wherein stirring said evaporation-inhibiting liquid phase comprises sequentially directing at least one stream of air, in opposing directions, such that the rotational direction of said evaporation-inhibiting liquid phase is sequentially reversed.
95. (New claim) The method of claim 87, wherein the step of applying an evaporation-inhibiting liquid phase includes applying an evaporation-inhibiting liquid phase to an impact zone, the impact zone being between the biological sample and an end of the slide.
96. (New claim) The method of claim 87, further comprising the step of applying reagent to the evaporation-inhibiting liquid phase.

97. (New claim) The method of claim 96, wherein the reagent passes through the evaporation-inhibiting liquid phase and into the aqueous solution.

98. (New claim) The method of claim 97, whereby stirring the evaporation-inhibiting liquid phase accelerates the rate of dispersal of reagent to the biological sample covered by the aqueous solution.